Study sees USDA role in linking electricity from alternative energy sources to grid

Getting Connected

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Editor's note: This article presents findings of Booz Allen Hamilton, a consulting firm headquartered in McLean, Va. The article does not reflect official positions of the U.S. Department of Agriculture or any other government entity.

USDA Rural Development commissioned Booz Allen Hamilton (BAH) to: examine current renewable energy markets for electricity generation; identify various barriers that inhibit further development of these resources by rural residents; analyze business model options that can be applied to better enable the profitable sale of on-farm generated power to the electric grid; and recommend programs or policies that USDA could undertake to promote greater capture of renewable energy benefits by rural communities.

Affordable and accessible electric transmission remains the greatest obstacle to the development of rural renewable energy projects overall. BAH concluded that USDA, as the largest lender to rural electric cooperatives for transmission upgrade projects, has an important role to play in working with a variety of stakeholders and regulators to develop comprehensive, equitable and transparent transmission access rules that provide the opportunity to participate fully in the growing renewables market.

Despite the lack of comprehensive, nationally applicable transmission policies, there are emerging policy solutions at the state and federal level. These include provisions of the Energy Policy Act of 2005, which call on the federal government to create new transmission corridors in renewable-resource-rich areas. Regulatory developments at the state-government level will likely make transmission access more transparent and affordable for renewable energy projects. BAH found that USDA could play a significant role in helping analyze and publicize these developments to ensure that rural communities are able to capitalize on them to the greatest degree possible.

Supporting rural renaissance

Rural energy production holds much promise as a means of supporting our national energy needs and contributing to the rural renaissance in America. A high percentage of the estimated U.S. wind and solar capacity and virtually all of the biomass-derived electricity generation capacity is located in rural areas. BAH found that wind energy currently offers the highest potential for profitable development, followed by biomass and solar opportunities. Unlocking the economic potential for these renewables requires analysis of the various value chains to identify the functions with the greatest potential for capture by rural residents. Realizing

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this value will require larger scale projects, which in turn will inform the choice of best business models.

The primary business model involves large-scale (primarily wind) projects by large and remote corporate developers, including investor-owned utilities and private energy companies. These projects bring some limited economic benefits to the local community but return the majority of the earnings to outside investors. Capturing the value inherent in renewable energy production requires major shifts in the way rural residents think about and act upon these opportunities.

Rural entrepreneurs key to effort

The first step in promoting these shifts is the dissemination of technical, business and policy information in a manner that America's rural entrepreneurs will understand. This information must be timely to ensure a market-based solution to both energy and rural development needs.

The greatest opportunities for capturing renewable energy value will be realized if rural communities aggregate their resources, either in the form of land-lease rights or capital formation, to develop new projects at the local level. However, such aggregation will only work if rural investors are able to secure access to expertise on various technical and contracting mechanisms that govern power production, including site selection, project operation and power purchase agreement negotiation.

There is no current means for distinguishing renewable energy generated and owned by rural communities. An examination of marketing and outreach mechanisms that could stimulate greater demand for community-owned renewable energy should be undertaken.

Facilitating best practices

Given the pace of change in the renewable marketplace, new policies and business models are emerging on an almost daily basis that fundamentally alter the feasibility of rural- owned and -operated rural energy. By providing rural Americans with easy access to such information, USDA would facilitate a more rapid transition to creative new best practices and help rural Americans increase their profitability by adopting cutting-edge policies and business models.

Providing access to technical expertise

On-farm energy generation will entail a number of technical decisions, ranging from identifying appropriate energy source, technology and size, to project-related decisions involving site selection and connecting to the grid. Business challenges include the aggregation of financing and finding and negotiating a power purchase agreement.

In most cases, tackling all of these issues requires outside expertise or counsel, which is often time consuming and expensive. BAH suggests that USDA help rural constituents overcome this barrier by establishing a program through which it would provide rural investors access to experts on the various aspects of renewable energy. These experts would be pre-screened by USDA to determine their level of expertise and experience.

Promoting 'green branding'

To assist in developing a local market for on-farm energy products, tools could be developed to create additional demand for rurally owned renewable power. The government has used similar branding campaigns to build consumer awareness and markets for environmentally friendly products to great success, most notably with the ENERGY STAR Program. The federal government could assist rural developers in creating "green-market" branding campaigns to help the public connect the benefits of rural-based renewable energy generation to those regions and to their own lives.

Increasing use of financial incentives

The federal Production Tax Credit (PTC), with its relatively short authorization periods and lapses resulting from delays in reauthorization, has had the effect of creating boom and bust periods in the industry. To avoid such cycles in the future, BAH suggests the federal government should develop guidelines for a consistent, integrated set of financial incentives targeted specifically at renewables and on-farm generation, including making the PTC, Clean Renewable Energy Bonds, and Renewable Energy Production Incentive long-standing and consistent. Reforming the PTC to allow it to be applied against ordinary income, instead of passive income, would significantly increase rural ownership opportunities.

In summary, USDA can play a significant role in helping rural communities to profitably invest in renewable energy projects. Renewable-resource-rich rural areas can, and will, lead the way in helping America to reach its energy independence and environmental goals while also furthering their own economic development. ■